Priorities for PV Research and the Role of New Capabilities

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The U.S. Department of Energy's SunShot Initiative seeks to enable subsidy-free solar energy to be cost competitive with conventional energy sources. Here the technology metrics for photovoltaic module cost, efficiency and reliability that are needed to reach the SunShot goals will be discussed, in the context of existing and emerging PV technologies.

To have the greatest continued impact on photovoltaic module as well as balance of system costs, SunShot's Photovoltaics program is focusing on what we see as today's largest technology R&D levers for cost reduction. Improved module reliability and performance prediction, for example, can significantly impact the balance of systems costs through lower cost of capital as well as increased energy output over the module lifetime. The potential impacts of innovations in PV module design, reductions in material and processing costs, and increases in cell and module performance on the cost of PV electricity will be discussed, as well as the role of new capabilities in enabling these innovations.